

Liquid crystal display

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A liquid crystal display includes a first insulating substrate, thin film transistors formed on the first insulating substrate, and pixel electrodes connected to the thin film transistors each with an opening pattern. A second insulating substrate faces the first insulating substrate. A black matrix and color filters are formed on the second insulating substrate, and a common electrode covers the black matrix and the color filters. A protrusion pattern is formed on the common electrode. The protrusion pattern is pillar-shaped with top and bottom sides. The top and bottom sides of the protrusion pattern are shaped with a circle, a rectangle, or a rectangle with curved edges. The protrusion pattern includes a protrusion having a relatively small thickness, and a protrusion having a relatively large thickness. The former protrusion is used for domain partitioning, and the latter protrusion is used as a spacer. A vertical alignment layer is internally formed on the substrates, and a liquid crystal is injected in-between the substrates. Polarizing plates are externally attached to the substrates, respectively. A bi-axial film and a lambd/4 plate are interposed between the respective substrates and the respective polarizing plates. The bi-axial film and the lambd/4 plate transform the linear-polarizing into a circular polarizing.

